

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. **(currently amended)** Apparatus to replace atmospheric oxygen with an inert gas ~~such as N₂ from the minimum of at least one~~ laminar air boundary layer ~~of a substrate (3) of~~ substrates moving ~~in a in the~~ direction of advance (2), ~~for instance rapidly running lines of material that include~~ said apparatus comprising a first chamber, a front mate electrode, a further mate electrode and an inert gas feeding device, wherein

~~[[a]] the first chamber (41) which is open only toward the substrate, and comprises and otherwise is enclosed by the surrounding outside space (40), said first chamber comprising:~~

~~in the vicinity of a front sealing edge a front corona electrode to which a (5) fed with high-voltage DC is applied and which is positioned perpendicular to said direction of advance, wherein the front corona electrode is configured as a front side wall of the first chamber and is associated with [[a]] the front mate electrode situated (7) situated on the other side side (42) of the substrate (1), also comprising;~~

~~a further corona electrode (6) electrode positioned behind the front corona electrode (5) on the same side as latter and situated at the rear sealing edge which is and perpendicular to the direction of advance (2) advance, wherein the further corona electrode is configured~~

as a rear side wall of the first chamber, the electrode (6) being is fed with a high DC voltage, and is being associated with [[a]] the further mate electrode (8) on the situated on the other side of (42) of the substrate (1), and further comprising a device feeding the inert gas (15);

a common upper electrode cover covering both the front corona electrode and the further corona electrode, wherein the common upper electrode cover seals the top of the first chamber and isolates the first chamber from an out-side space; and

two lateral electrode covers laterally covering said two corona electrodes;

wherein the first chamber is positioned adjacent to the laminar air boundary layer of the substrate, such that a partial-vacuum zone is formed between a lower end of the further corona electrode and an adjacent surface of the substrate; and

characterized in that

the device feeding the inert gas (15) is configured directly behind the partial vacuum zone (12) forming behind the electron/ion flow (9) of the further corona electrode (6) the inert gas feeding device is configured to supply the inert gas into said first chamber at a point downstream of the partial-vacuum zone.

2. (currently amended) Apparatus as claimed in claim 1, ~~characterized in that~~ wherein the inert-gas feeding device comprises an inert gas dispenser and (14) and is designed as an inert gas nozzle (15) configured positioned near the substrate and (1) and enters the partial-vacuum zone, and (12) and points at the same.

3. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that wherein the inert-gas dispenser (14) is fitted with~~ comprises a rear baffle which runs (16) running over the full width of the substrate, and (1) and with two lateral baffles which run (21) running parallel to the direction of advance and are (2) and situated near the adjacent surface ~~surfaces of the substrate (1) substrate.~~

4. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that wherein the rear baffle is (16) is flush with the rear termination of the inert-gas-dispenser (14) dispenser.~~

5. (canceled)

6. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that wherein at least one of the front and and/or the further mate electrodes is a (7, 8) is grounded and designed to be a guide-roller (7) roller.~~

7. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that wherein at least one of the front and and/or the further mate electrodes is a (7, 8) is grounded and designed as a quiescent-electrode (8) electrode.~~

8. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that wherein the front and and/or the further corona electrodes (5, 6) are equally spaced apart by a grid pitch and (26) and each comprises single-single-tip electrodes configured that are positioned in one plane and that point at the adjacent a particular surface of the substrate (1) substrate.~~

9. **(currently amended)** Apparatus as claimed in claim 8, ~~characterized in that wherein the single-single-tip electrodes of the further corona electrode front corona electrode (5) are~~

offset by the half the grid pitch (27) ~~relative to the grid pitch (26)~~, and the single-tip electrodes of the front corona electrode are offset by a half of the grid pitch ~~of the further corona electrode (6)~~.

10. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that~~ further comprising a rear corona electrode and (22) together with a rear mate electrode (8) is configured positioned between an inert the inert-gas nozzle of the inert gas feeding device and (15) and the further corona electrode (6) and subtend to form a further-chamber (43) chamber.

11. **(currently amended)** Apparatus as claimed in claim 10, ~~characterized in that~~ wherein the further chamber comprises the (43) is constituted in the manner of the first chamber (41) by a rear corona electrode, (22) of the further corona electrode, a further (6), of a single common upper electrode cover that covers (19) covering said two corona electrodes and two further of two lateral electrode covers that laterally cover said (20) laterally covering these two corona electrodes.

12. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that further~~ comprising a UV radiator having (34) fitted with a quartz pane, which seals it is wherein the quartz pane is mounted directly behind an inner the inert-gas nozzle (15), said of the inert gas feeding device and quartz pane running is positioned parallel to the-substrate (1) substrate.

13. **(currently amended)** Apparatus as claimed in claim 1, ~~characterized in that~~ wherein [[a]] the UV radiator, (34) jointly with a sealing corona electrode, and (31) beside a sealing mate electrode (7) is are mounted behind the inert gas nozzle (15) ~~on- on~~ on the other side of the substrate (1) substrate.

14. **(currently amended)** Apparatus as claimed in claim 13, ~~characterized in that~~ wherein the sealing mate electrode is (7) is a grounded guide roller.

15. **(currently amended)** Apparatus as claimed in claim 13, further comprising characterized in that the lateral electrode covers (20) are designed to be a lower lateral cover which (36) laterally subtended extends along the substrate (1) and as far as said substrate's other side (42) and is positioned on the other side of the substrate, wherein said lower cover on said other side (42) being is sealed off by means of a lower chamber cover (37) cover.

16. **(currently amended)** Apparatus as claimed in claim 15, 13, ~~characterized in that wherein~~ the sealing corona electrode, ~~(31) together with the lower lateral and chamber covers and (36) of the lower camera cover (37) and the mate electrodes acting (7) acting as guide rollers together define subtend~~ a chamber geometry.

17. **(currently amended)** Application of the apparatus claimed in claim 1 to gravure printing, flexographic printing, sheet offset printing or roller offset printing and in coating machinery, ~~for instance~~ in the paper and textile industries.

18. **(new)** Apparatus as claimed in claim 1, wherein the inner space of the first chamber is sealed at top by the electrode cover, and is sealed on all sides by the corona electrodes and the lateral electrode covers, the first chamber is solely opened toward the substrate.

19. **(new)** Apparatus as claimed in claim 8, wherein the common tip electrodes of the front corona electrode and the voltage applied thereto are configured to convert the laminar air boundary layer into turbulent air.

20. **(new)** Apparatus as claimed in claim 8, wherein the common tip electrodes of the further corona electrode and the voltage applied thereto are configured to scrape-off a turbulent air boundary layer by forming the partial vacuum zone.